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U.S. Senator Ron Wyden

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Hearing of the Subcommittee on Science, Technology and Space
"NASA and Education"
Remarks of Sen. Ron Wyden, Chair

"Since last fall the Subcommittee on Science, Technology and Space has spent considerable time discussing ways to mobilize a new generation of science and technology experts. The National Aeronautics and Space Administration has an important role to play in this endeavor through the promotion of scientific research, exploration and education programs.

"Mobilizing a new generation of science and technology experts is a growing challenge in the face of a shrinking number of Americans with degrees in science and engineering. Even more appalling is the lack of women in the professional ranks of science, engineering and technology.

"Of the 2 million scientists and engineers working in the United States, 90 percent are men, according to the Bureau of Labor Statistics. Ninety-*three* percent of the country's aerospace engineers are men.

"The most recent statistics about college graduates reveal that out of 1.2 million graduates with degrees in math and the hard sciences (which excludes psychology and the social sciences), only 70,000 are women. So, not only are fewer women studying math and the hard sciences, but even fewer go on to careers in these fields.

"A positive note is that those women who do pursue careers in math, science and engineering on the average earn more money than women in other professional fields. The Bureau of Labor Statistics reports that women working as engineers, computer scientists, pharmacists and lawyers had the highest median earnings of women in any professional occupation.

"Some might argue that women don't pursue careers in the sciences because they are just uninterested – that there are biological reasons why women don't go into math and science. Studies, however, dispute those arguments. Studies indicate that girls show as much or more interest in math and science as boys in elementary school, but something happens around junior high school that turns girls away.

"Some of this is due to peer pressure: kids may think math and science are just not cool. Some of this is due to teaching methods that may dissuade girls from math and science

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studies. Whatever the reasons are, something must be done to foster, not frustrate, girls' interest in math and science and encourage them to pursue these important careers.

"The bias against women pursuing careers in math and the hard sciences is found throughout our society. The space program alone cannot root out this problem. But NASA, with the launch of its major new education initiative, can use this program as a trampoline that can land more women in these academic disciplines, from which they can find rewarding careers in a host of professions.

"If NASA will use its new initiative to help generate a significant increase in the number of women pursuing careers in science, engineering and technology, the benefits will be felt across our society.

"So today I want to challenge NASA to help triple the number of women graduating college with degrees in science, math and engineering by the year 2012. Over the same decade, I want to see the overall number of graduates in math and the hard sciences triple as well.

"It is time to grow the next generation of innovators, engineers, astronauts and astrophysicists, and to energize more women to pursue careers in these fields. This panel convenes today to examine NASA's efforts to do so. By educating and mobilizing the next generation for achievement in science and technology, NASA is working to deepen its roots in research and reach for new stratospheres in science.

"Whether pursued by men or women, science education and math education are critically important to the nation. Last month former House Speaker Newt Gingrich testified before this panel about the future of the National Science Foundation. He cited a report from the Hart-Rudman Commission on National Security to 2025. That report warned that America's failure to invest in science and to reform math and science education was the second biggest threat to our national security. It warned that only the threat of a weapon of mass destruction in an American city was a greater danger.

"In fact, the Commission unanimously concluded that the danger from under-investing in math and science and failing to reform math and science education was greater than the danger from any conceivable conventional war.

"Simply put, technological advantages are also military and homeland security advantages. If America does not invest in science education, those advantages will be lost.

"But science education and innovation are not only components of national security. Scientific innovation has driven this country's economic competitiveness. Better engineering, new discoveries and development of the Internet all contributed to the exponential growth of the economy in the last decade.

"Today's witnesses will illustrate NASA's educational scope, from the first grade through Ph.D programs around the country. They are living examples of how NASA is developing educational material, teaching teachers and funding education. These witnesses are both inspired and inspiring – and today's testimony will range a bit outside the realm of the usual. The Subcommittee will have an unusual opportunity to hear taped testimony from an astronaut working at the International Space Station, as well as to witness a live experiment by two promising young scientists.

"NASA Administrator Sean O'Keefe is also a witness today. He has made education a priority for NASA. He has done so not only because education is a worthwhile pursuit in itself. Education is essential to the future of his agency.

"One third of NASA's work force will become eligible for retirement in the next three to five years. Today's undergraduate and graduate students – and even elementary school students – can rest assured their work and study will be much sought after.

"Again, the goals for today's hearing are to begin an initiative to encourage women to enter scientific and mathematical fields, to examine NASA's current educational efforts and to determine how they can best be expanded to benefit science and technology in general, and women in those disciplines specifically. This is in the best interests of the agency. Only by nurturing the next wave of science experts can NASA reach the goal this Subcommittee has set: to maintain NASA's mission of exploration and research for the future."

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witness testimony from today's hearing is available online at
http://commerce.senate.gov/hearings/hearings0202.htm